

Minutes of the 21st Meeting of the Arctic Monitoring and Assessment Programme (AMAP) Working Group

Hanover, NH, USA

12-14 March 2007

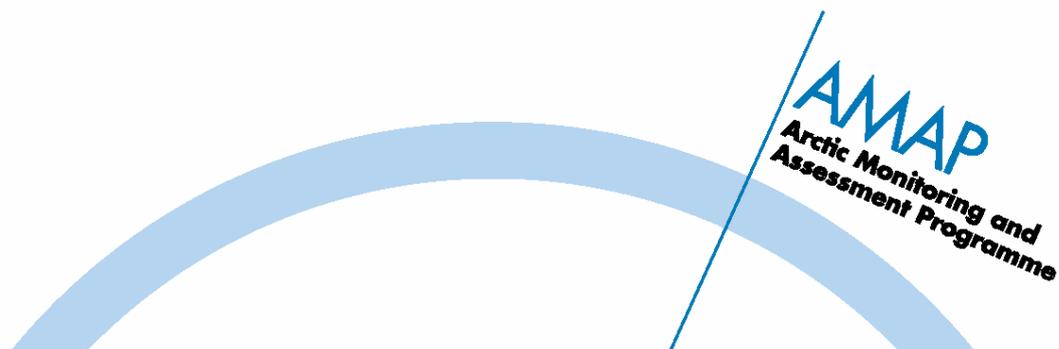


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Minutes of the 21st AMAP WG Meeting, Hanover, NH, USA, 12-14 March 2007

1. Opening of the meeting

The AMAP WG Chair, John Calder (USA), opened the 21st AMAP WG meeting, welcomed participants to Hanover, and provided practical information concerning the meeting arrangements.

Professor Ross Virginia and Anne Udry, Administrator, added their welcome to the Institute of Arctic Studies at Dartmouth College and noted the importance of the work of AMAP in addressing the environmental problems in the Arctic region.

Participants briefly introduced themselves; the list of participants is attached as Annex 1.

The documents for the meeting were reviewed; a list of documents for the meeting is attached as Annex 2.

2. Approval of the Agenda

The draft agenda (Annex 3) was adopted, with the Chair explaining that items would be dealt with in a flexible manner in order to coordinate the activities of the WG and the lead authors of the Oil and Gas Assessment (OGA) in a productive manner. OGA authors would meet in parallel when the WG were considering other items. It was agreed that a presentation by RAIPON concerning their work on oil and gas issues would be included in agenda item 4. Requested presentations by Canada and Russia concerning their national and IPY activities would be included under agenda items 5 and 9. A List of Actions agreed at the 21st AMAP WG meeting is attached as Annex 4.

3. Short progress report from Chair and Secretariat

John Calder reported on the outcome of the Arctic Council Ministerial meeting held in Salekhard in October 2006, and the AC WG Chairs meeting that took place in Tromsø in January 2007. He highlighted the Ministers discussions concerning climate issues, including the request to AMAP to coordinate work to develop a Sustained Arctic Observing Network (SAON) and their request for the delivery of the OGA and release of the overview report in 2007.

At the WG Chairs meeting (following the transfer to Norway of the AC Chairmanship), discussions were held on the report of the (climate change) adaptation workshop. Due to lack of agreement, the report of this workshop including all options would now be presented to SAOs in the form of a Chairs report. Norwegian priorities for their period as AC lead are Integrated Resource Management, Climate change follow-up, and an examination of the structure of the Arctic Council with a view to improving its efficiency. A Secretariat to support the Arctic Council Chairmanship under Norway and thereafter under Sweden and Denmark had been established in Tromsø and staffed with 3 persons.

Lars-Otto Reiersen (AMAP Executive Secretary) presented a list of scheduled meetings in 2007 relevant to AMAP (WG21/3/1, www.amap.no > Meeting Schedule) and requested all delegations to notify the Secretariat of any updates, corrections or additional meetings to add. He also referred to the list of actions from the 20th WG meeting (WG21/3/1) indicating that the listed actions would be reviewed at the meeting in connection with relevant agenda items.

Russel Shearer (Canada) drew the attention of the WG to the proposals for AC projects on Integrated Ocean Management (ecosystem approach-based assessment) and on reduction of sea-ice (climate change follow-up) that were included on the draft SAO agenda for their next meeting, and requested that a discussion on these proposals be held during the WG meeting.

4. The Oil and Gas Assessment (OGA)

PART 1:

Presentation of Scientific Assessment Results - Chapter 7

Hein Rune Skjoldal presented the content of the latest version of Chapter 7 (Conclusions and Recommendations) of the OGA scientific report. He indicated that, although work remained, the conclusions were generally consistent with those developed during OGA authors meetings in the Hague (July 2006) and Victoria (September 2006), which had been used as a basis for drafting the overview report. The current version is a slightly amended version of that produced after the Victoria meeting.

In his introduction, he also referred to continuing problems related to gaps in information and lack of expert contributions to some parts of the assessment. In particular, he questioned the situation regarding contributions that had been promised by CAFF experts (specifically from the US Fish and Wildlife Service) and whether there was some reason why, despite firm assurances, and efforts on his part (including a visit to Anchorage to meet with US experts) during the past 18 months, these contributions had still not been delivered. He did, however, acknowledge recent contributions received from Russia and Denmark.

Presenting the Conclusions according to the OGA scientific chapters, with additional input from the relevant chapter lead authors present at the meeting, the following information was provided:

1. Activities: Chapter 2 of the assessment distinguishes near-term (<10 year), medium-term (10-15 years) and long-term (beyond 2020) scenarios for Arctic oil and gas development; the focus of the OGA is on the near-term, with projections made for the period 2005 +10 years; for the period beyond 2020 any projections become very speculative. The chapter is dealing with some parts that suffer from too much information and others that have too little information. A drafting team has been established to restructure some of the material. The long-awaited revised contribution from Russia (facilitated by AMAP funding) had been received the previous week, which removes one of the major obstacles to completing the chapter. Statistics presented for Russia still need to be reviewed by Russian experts, and some outstanding questions (for example concerning Russian pipelines) still need to be clarified. Also some additional information on Russian regulatory systems and research and monitoring has been requested from Russia. In general, no major impact on conclusions relating to chapter 2 are anticipated, recommendations however, may still need to be revised.

2. Socio-Economic Aspects: Oil and gas activities are identified as a major driver for social and economic change in the Arctic. Governance is highlighted as the key factor in managing this development and its impacts. Oil and gas activity is inherently un-sustainable, however, the economy derived from this activity can be sustainable if resources are used wisely. Additional texts based on the 'Economy of the North' report have been included and Chapter 3 is handed-over for editing. One major conclusion is that in any future similar work there is a need for more consistent data from all countries.

3. Sources and Concentrations of Petroleum Hydrocarbons in the Arctic Environment: Generally the draft conclusions based on Chapter 4 are unchanged. There is however a need

to re-check and cross-reference the material for consistency with Chapter 2. The information presented represents a major advance on that available for the 1997/98 AMAP assessment, however there is still a need for improved standardisation (and thus to repeat conclusions made in the 1997/98 assessment); the density of data available is not consistent leading to inhomogeneity in the assessment process. The budget of petroleum hydrocarbons in the Arctic could be improved and would have a sounder basis if better information had been available. However, despite its weaknesses, the budget would not be expected to change in any significant respects, so conclusions drawn on the basis of the budget can be supported. It was suggested that databases should be compiled and data evaluated periodically in the interim (between major assessments) so that some of these issues could be addressed on a continuous basis – this would also apply for socio-economic data.

4. Impacts on Biota, the Environment and Human Health: Authors of Chapter 5 are still concerned that they may have missed significant information, from Russia in particular (in part due to problems reviewing literature published in Russian without involvement of Russian experts). The assessment of effects on terrestrial environments is therefore mainly based on information from Alaska and Canada. Cross-chapter comparison is ongoing and likely to result in at least changes in emphasis (or nuances) for some conclusions, and additional qualification on parts of chapter 7.

Hein-Rune Skjoldal stated that in his view there is an imbalance in the overview report, with too much information on toxicology. The main messages of the chapter are that in the terrestrial environment the main issue is physical impacts, in aquatic system the main issue is oil spill impacts, and the message concerning human health is less clear – identifying potential but no actual effects on humans outside of occupational exposure situations. Similarly, tainting issues are overemphasised. In relation to chapter 7, conclusion 3.5 is the main conclusion of the chapter and the main basis (qualifier) for conclusion 3.1; weaker statements regarding potential for human health effects should receive less emphasis given the lack of evidence of any actual effects.

5. Populations, Habitats and Vulnerability: Chapter 6 identifies local environmental effects, but population level effects appear to be minimal. Long-term variation in populations complicates this part of the assessment. Seismic activities have limited impacts on marine mammals. There may be a need to include more information about how climate change may affect populations in the OGA, and some considerations on vulnerability remain to be addressed.

WG Discussion

Referring to the lack of promised contributions from some countries, the assessment leads noted that, in order to address ongoing problems involving relevant US experts in Chapter 6, the lead author had visited the US in June 2006 specifically to meet with experts from the US Fish and Wildlife Service. However, no contributions had yet been received.

It was agreed that this matter should be raised with the SAOs, initially through discussions between the WG Chairs, in order to resolve the issue and identify how to proceed in the future.

Tom Armstrong (the United States) undertook to look into the specific problems associated with the lack of promised contributions from US Fish and Wildlife Service experts.

Lessons Learned

Lessons learned in the OGA process were noted as follows:

- There is a need to ensure that roles as ‘leads’ of the assessment and authoring responsibilities are separated in any future assessments.
- The lack of an adequate ‘team’ of authors was identified as a problem for certain chapters (e.g. Chapter 6), resulting in too much work falling on the shoulders of some individuals.
- The sensitivity between AC WGs remains a problem, as illustrated by the discussions concerning CAFF involvement in the OGA and the discussion of LMEs during the PAME meeting in Tromsø. The lead of Chapter 3 also indicated that the contribution of SDWG to the OGA was minimal and far below his expectations.

RAIPON Presentation

Velery Kryukov (RAIPON nominated expert) presented the results of a study commissioned by RAIPON into ‘Issues of hydrocarbon resources production in the Arctic zone of Russia in terms of sustainable development’. Referring to oil and gas activities on the Yamal Peninsula and other parts of Russia, recent developments in federal legislation, and the current trends for transfer of responsibility to major oil and gas companies and arrangements for disbursement of oil and gas revenues, the presentation concluded that, based on the examples presented, the current approach to sustainable development being implemented in Russia is not adequate in relation to economic, ecological and social aspects.

The lead of Chapter 3 agreed to incorporate parts of the information presented by RAIPON in a box (of ca. 1000 words) that would focus on the Yamal regional study; also considering whether this new material warranted any adjustments to the conclusions and recommendations relating to chapter 3.

The Overview report

Simon Wilson (AMAP Secretariat) presented an overview of the process to date to prepare the OGA Overview report, based on draft of Chapter 7 that was available after the Victoria OGA author’s group meeting. A draft had been circulated to authors and countries for limited review in December 2006, and an updated draft circulated for full national review on 9 February 2007 together with a first draft of an Executive Summary (including provisional recommendations). All countries had delivered comments by or shortly after the deadline of 28 February 2007, allowing these to be incorporated into a new draft text that was presented to the WG meeting in document WG21/4/2. Document WG21/4/3 provided a list of the comments received and how these had been addressed.

There had been no time to redraft the Executive Summary prior to the WG meeting, however a revised version attempting to address comments received would be distributed for discussion during the meeting.

On the basis of these documents, the intention was (1) for the WG to review the document WG21/4/2 with a view to finalising these texts as far as possible as the content of the Overview report; (2) for the WG to review and comment further on the proposed graphical content and layout as presented in the version distributed on February 9; (3) for the WG to review the redrafted Executive Summary and, taking into account the work on chapter 7 of the science report being conducted by OGA authors in parallel with the WG meeting, to provisionally approve these texts and related recommendations; (4) for the OGA authors to confirm that their provisional sign-off of the overview report as being consistent with the science as presented in the scientific assessment.

In anticipation of the fact that there would still be some outstanding issues connected to the finalisation of Chapter 7 of the science report, the WG approved draft would remain open for

final adjustment after the WG meeting. However, it was hoped that, given the authors comments regarding the state of chapter 7, and further changes would not be extensive. Any affected texts would be marked for re-consideration with a view to approving these at a Heads of Delegation phone conference or meeting before the summer.

According to the timeframe for completion of the reports, the materials approved by the WG would be prepared in a new layout draft that would be circulated to other stakeholders to gain their reactions prior to publication during the summer.

Ruth McKechnie (Canada) informed the WG that she had received additional comments from Canadian experts to the version of the overview report that was distributed on February 9. It was agreed that these could be introduced during the WG consideration of the revised overview draft.

Following this proposed process, the WG, together with the OGA authors present at the meeting, considered the overview report texts in document WG21/4/2 and agreed revisions that were recorded by Simon Wilson.

Discussion of the revised Executive Summary was delayed till later in the meeting, pending the outcome of the parallel work by OGA authors on Chapter 7 of the scientific assessment report.

OGA Financial issues

Lars-Otto Reiersen presented an overview of the budget and finances for the production of the OGA Overview and Scientific reports. This budget had been substantially revised to take into account the increased costs associated with the expanded scope and volume of the scientific report, the need to extend contracts (for the overview author, editors and graphical/layout staff) due to additional work and delays in delivery of the reports, the need to engage consultants to assist the authors in preparing parts of the scientific assessment, and the costs associated with provision of the Russian contributions, etc. Funding received and expected from a number of sources will cover part of the production costs; the remaining costs will need to be covered by subscription by countries for copies of the reports (which will be provided on a cost per copy basis, with cost adjusted to break-even on production costs). Some costs may also be met by delivery of copies of the report to other stakeholders, such as industry. Countries were requested to provide the Secretariat with a non-binding estimate of the numbers of copies of each of the OGA reports that they would like to receive for national distribution.

Events for Presentation of the OGA Science report:

Lars-Otto Reiersen presented information on events that have been proposed for presentation of the OGA reports. He reminded of the plan that, if possible, the OGA results would be present at relevant meetings in North America, Europe and Russia.

In this connection, one of the events in 2007 that had been discussed was the Arctic Energy Summit in Anchorage, Alaska co-sponsored by SDWG. The WG was informed that, due to lack of responses to the invitation for papers for the conference, the arrangements for this event were still being developed. The AMAP Chair agreed to take contact with the organizers to clarify the status of the Arctic Energy Summit.

Options for Russia still include the RAO-CIS conferences in St. Petersburg. It was agreed that it is probably now too late to introduce an OGA session into the arrangements for the 2007 RAO-CIS conference (September 11-13), and that the event in 2008 would be more appropriate. Yuri Sychev would contact the RAO-CIS organizers to discuss this possibility further.

Salve Dahle (Norway) presented an offer from the organizers of the Arctic Frontiers conference that will take place in Tromsø (January 21- 26, 2008) that this event could be jointly arranged with AMAP to present the OGA scientific results and also engage decision-makers to consider any policy relevant aspects. He informed that, if AMAP wished to take advantage of this offer, they would need to give their in principle acceptance within a short time, so that the organizers could start to make the necessary plans and arrangements.

The WG agreed to accept the offer from the organizers of the Arctic Frontier conference to present the result from the OGA at their conference in January 2008, and asked Salve Dahle to communicate this response to the organizers. They further requested that the Secretariat engage with the organizers to take care of the necessary arrangements from the AMAP's side.

The Offshore Northern Seas Conference (Stavanger, August 26-29, 2008) was mentioned as another possible venue for presentation of the OGA scientific results.

The WG agreed to continue their discussion of agenda item 4 when the OGA authors had concluded their meeting on chapter 7 (see Part 2, below).

PART 2:

Following the OGA authors meeting, Hein-Rune Skjoldal and Dennis Thurston (co-leads of the OGA) provided the following update:

The OGA group present had further refined the conclusions in Chapter 7 of the scientific report. This had not resulted in any major changes regarding the content of the findings, however some changes had been made at the more detailed level, reflecting decisions on prioritisation, emphasis, etc. Chapter 7 conclusions were now re-organized under the following ten headings:

1. Oil and Gas Activity.
2. Socio-economic Aspects
3. Human health effects (which will be moved after item 8).
4. Sources and Levels. A disconnect in the process had been identified between chapter 4 and 5; this required some carefully further examination which may affect conclusions from chapter 5.
5. Contamination of ecosystems and humans, the main conclusion being that, other than in connection with major incidents such as spills, there are unlikely to be effects in the Arctic. Also highlighting the lack of information on point sources (with some exceptions) and local pollution.
6. Physical impacts, relating principally to terrestrial areas
7. Oil spills, as the major threat to the aquatic environment
8. Population level effects.
9. Technology and Practices, including reference to the problems associated with clean-up of spills in rough and ice-infested water.
10. Governance, regulatory aspects and international standards.

A new version of Chapter 7 would be circulated among the authors group after the meeting for a final round of comments from authors – which was not expected to take a long time to

complete. The OGA authors group had, however, not yet addressed the scientific recommendations sections of chapter 7.

Although no major changes were expected that would influence on the Overview report, the authors considered that it was too early to sign-off on this, and therefore had proposed a revised timetable for completing the assessment, as follows:

15 June: Final deadline for hand-over of all chapters of the scientific report for technical and linguistic editing (hopefully with some chapters, in addition to chapter 3, available before this time). Main activities to complete before this deadline were conduct a (peer) review on the new Russian sections in chapter 2, additional work on chapters 4 (to consolidate the information) and chapter 5 (to ensure consistency with chapters 2 and 4), additional input and (peer) review of missing parts of chapter 6. In connection with the latter, Hein-Rune Skjoldal presented an overview of outstanding information requirements.

In their discussion on the above presentation, the WG expressed their concern about the additional delays but recognized the need for the additional work to ensure the quality of the assessment. Russia agreed to work with Hein-Rune Skjoldal to address his requests concerning Russian information gaps and review needs – mentioning the need for additional financial support for this. Canada, the USA and Iceland similarly agreed to do their best to meet these requests, and in particular the United States committed to following-up on the lacking promised input from the US Fish and Wildlife Service.

Canada did raise the question of why they were being asked to complete information on ecosystems for Chapter 6 when the assessment had concluded that these ecosystems were not affected by petroleum hydrocarbons, and in several cases had no oil and gas activities. In response, Hein-Rune Skjoldal indicated that part of the answer was uncertainty about where oil and gas activities (including oil and gas transportation) might take place in the future, implying that all ecosystems were potentially vulnerable. Although it will not affect the conclusions, in some cases much information has already been compiled so the requests for outstanding information are limited.

To avoid continuing uncertainty as to whether it would be possible to deliver the requested input, the WG agreed that HoDs of the countries concerned would respond to the OGA leads and Secretariat within two weeks to notify whether or not they would be able to deliver the outstanding information, and if so how this would be achieved. In the event that HoDs inform that they are unable to meet the requests, the OGA lead authors will have to decide how they handle the situation, but at least they will know the situation.

The WG also considered the implications of the further delays in the delivery of the science chapters for the completion and delivery of the overview report. They concluded that the lack of author sign-off meant that it would be inappropriate to spend additional time on the Executive Summary during the WG meeting. Work on the overview would continue as far as possible, but the overview was not essentially on hold until the next version of Chapter 7 (including the scientific recommendations) is available. As a consequence, it was envisaged that a further HoDs meeting would be required later in the year to finalise the overview report and approve the executive summary and recommendations. Simon Wilson also noted that this may have additional financial implications as persons employed to complete the publication work would now need to be employed for an extended period.

5. The ACIA Follow up

Sustained Arctic Observing Network (SAON)

Odd Rogne (AMAP Secretariat) presented the background to the Ministers request to AMAP to coordinate Arctic Council activities in support of the development of a SAON, activities undertaken to date in this connection, and plans for future work. The need for a system for long-term observations in the Arctic was first identified during the first IPY in 1879, however this has still to be realised, as identified in the Ministers response to AMAP and ACIA findings in 2004 and 2006. Initial discussions within a ‘SAON initiation group’ (including AMAP representing the AC, AOSB, CLiC/WMO, IASC, IASSA, IPY and NSF) were held in Tromsø in January. This meeting developed plans to bring together relevant parties (also including IPS and ISAC) at a SAON workshop planned for November 2007 to further elaborate SAON plans.

The WG discussions of SAON raised the following comments and questions:

Several delegations indicated concern that the SAON plans, as presented, implied the construction of a new large structure of groups, with implications for additional meetings, etc., and that the relationship of this ‘group’ to AMAP was unclear. In response, John Calder informed the group that it is not the intention to create a new group or organization, but rather to coordinate existing networks in a more effective manner. AMAP is one of the key networks to include in SAON in this respect. The lack of mechanisms to optimise observations after IPY was highlighted. Canada indicated that the SAON vision (in particular the concept of ‘supersites’) may not be compatible with Canadian national plans for ACIA follow-up in relation to establishment of observing systems – SAON plans need to recognize the different situations that exist in the different countries. The communication of the SAON plan to SAOs had led to confusion in this respect, so future communications should be addressed via the AMAP WG rather than directly to SAOs. Simon Wilson stressed the need to avoid the use of terms such as ‘core group’ or ‘coordination group’ (which have sometimes been used in connection with the Tromsø meeting) if the SAON process is to be seen as transparent and inclusive. In conclusion, the WG agreed that before presentation in other fora, the presentation of the SAON plans need to be adjusted to make it more clear that:

- SAON aims to establish a network – not an organization – based on existing observation systems;
- ‘Super- (climate monitoring) sites’ are not appropriate for all countries;
- One objective of SAON should be to improve data flow based on the existing networks, and that this can be better optimised if there is a clearer idea of what the SAON data will be used for (how and by whom)
- Better explain how SAON will enhance the current situation (i.e. improve the current networks), including describing how it will operate (e.g. concerning flow of data).

Funding was identified as the key issue to implementing a SAON, and the practical realities in obtaining commitments for long-term provision of funding remain the greatest obstacle to SAON; linking existing networks will not necessarily improve this aspect of the problem.

Carbon flux workshop

John Calder reported on the outcome of the Arctic Carbon Flux workshop that was held in Seattle (February 27-28), co-sponsored by AMAP (together with IASC and CLiC). This was an ACIA follow-up activity, organized by AMAP under the lead of United States and Sweden (WG21/5/4). Thirty experts participated in the workshop, and made good progress in

developing plans to deliver update products and information on this topic, including a possible fact sheet to be produced by AMAP. The activity is linked to global work on Carbon Flux and Climate Change.

The AMAP Climate Expert Group (CEG)

John Walsh presented information on ACIA follow-up activities proposed by the AMAP CEG (WG21/5/2). In connection with the planning of (restricted scope) ACIA update reports, the CEG were proposing that these be timed for delivery between IPCC assessments, so that they can be used effectively in the IPCC process. These synthesis reports would present scientific information and be written by scientists, and would specifically keep away from policy-related issues.

A workshop on (mainly statistical) downscaling of modelling will be organized in Oslo (May 14-16); an invitation to the workshop, outlining the scope and objectives of the workshop, has been distributed. The WG were informed that the current call for research proposals under the EU 7th Framework includes downscaling as one of the priority areas for funding; the deadline for applications for funding under this call is May 1. HoDs were asked to ensure that relevant research groups in their countries were aware of this, and encourage them to apply for funding to support Arctic downscaling initiatives.

The next CEG meeting may take place later in 2007, or early in 2008. In the interim, John Walsh would consult further with the CEG on the content of document WG21/5/2, which had been prepared just prior to the WG meeting on the basis of input from CEG members, to assign priorities to the various tasks proposed. Concerning priorities and timing for work under the CEG, the WG agreed to ask the CEG to develop a proposal to prepare a report that would synthesize Arctic information from the IPCC reports into a single report. The University of Alaska has expressed an interest in financing such an activity.

National reports on ACIA Follow-up activities

Morten Olsen (Denmark) presented information on the monitoring systems at Zackenberg (East Greenland), where data on 2500 variables are routinely collected. A similar programme is now being established at a second site in West Greenland, close to Nuuk. Danish climate research in the coming years will focus on the melting of the Greenland ice sheet, and a systematic monitoring programme drawing on satellite data, measurements from aircrafts, measurements on the margins and the inland part of the ice-cap will be started in 2007. Other related research projects are looking into the water exchange between Scotland and the Faeroe Islands, and between Shetland and Iceland.

Erik Syvertsen (Norway) informed about the NorACIA, national programme to follow-up on the findings of ACIA. The main tasks are to:

- prepare a holistic regional (Norwegian Arctic) assessment of climate change based on down-scaled models, updated scenarios and updated information on relevant processes influencing climate change, and adaptation actions that have been developed. This report is to be produced in 2009;
- disseminate information, in particular with the view to engaging other sectors in the initiation of adaptation actions;

This programme is funded at 0.5 mill USD pr year and organized through 5 working groups, the third of which includes carbon flux investigations; projects have been initiated under 4 WGs so far, including, e.g. projects concerned with climate scenarios. The planned work also includes nine workshops that will be arranged between 2005 and 2009. He explained that this programme is intended to deliver information to both the AC and to relevant sectors within

Norway. Although NorACIA is an independent activity, it will be coordinated as far as possible with AC ACIA follow-up.

Yuri Tsaturov (Russia) presented information on planned Russian activities under the auspices of Roshydromet to follow-up AMAP CEG recommendations. The main activity over the next 3 years will be related to IPY projects, including a number of ice-breaker cruises and the establishment of the atmospheric monitoring station at Tiksi. In addition, Roshydromet will continue modelling activities based on the new generation of IPCC models. A report on the effects of climate change on Russia is under preparation.

Russel Shearer (Canada) presented information on the Canadian ArcticNet research programme. Most climate work in Arctic Canada will be organized under the ArcticNet umbrella in the coming years. ArcticNet is one of 23 Networks of Centres of Excellence (NCE) in Canada; the only one in the Arctic. It is jointly funded by the 3 Canadian Research Councils, at 6.4M\$/year, with funding secured for the initial period (2004-2011) with the option to extend the programme for a further seven years (to 2018). The scientific Program include 30 research projects in 4 Themes:

- Climate change impacts in the Canadian High Arctic: a comparative study along the East-West gradient in physical and societal conditions
- Food, Water and Resources in the Shifting N-S Thermal Gradient of the Terrestrial Eastern Canadian Arctic
- Managing the Largest Canadian Watershed in a New Climate: Land-Ocean Interactions in Sub-Arctic Hudson Bay
- Adapting to Change in the Canadian Arctic: Knowledge Transfer, Policies & Strategies

Project work will cover the entire Canadian Coastal Arctic, involving hundreds of Canadian scientists and many foreign scientists, with a strong focus on graduate and post-doctoral students. Canadian IPY projects are strongly integrated with the planned ArcticNet activities.

Tom Amstrong (USA) reported that the USGS will extend their monitoring capacity with respect to effects of climate change.

6. Status of Deliverables for 2009-2011

AMAP Mercury Expert Group: Mercury update assessment 2011

Simon Wilson reported on activities of the AMAP Mercury Expert Group (AMEG). At the 'AMAP Workshop on Statistical Analysis of Temporal Trends of Mercury in Biota', Stockholm (30 October-3 November 2006) members of the AMEG from Canada, Denmark, Finland, Iceland, Norway and Sweden, and an expert from the United Kingdom conducted statistical analyses on ca. 150+ time series data sets according to a standard methodology. These revealed some 30 statistically significant trends, with a clear distinction in trend patterns east and west of Greenland, strengthening observations that were suggested in the AMAP 2002 Mercury Assessment. The workshop report will be available soon. Also at the workshop, the participants, including the two leads of the AMEG, had held brief discussions on the plans for the next AMAP mercury assessment, assessing the considerable additional information that has become available since the last assessment in 2002. According to the work plan agreed at the AMAP WG20 meeting, this would be presented to the AMAP WG in 2009 for delivery to the AC Ministerial meeting in 2010. Due to the planned change in timing of AC Ministerial meetings from autumn to spring, a revised timetable had been prepared and

circulated to AMAP HoDs (see WG21/6/1 and WG21/6/1 – Add. 1), whereby the assessment would now be presented to the AMAP WG in 2010 for delivery to the AC Ministerial meeting in 2011.

In order to initiate the assessment, the AMEG plan to hold an expert meeting late in 2007, and requested AMAP HoDs to take this into account in planning for involvement of their national experts in this process. In parallel with the mercury update, the AMEG suggested that a limited assessment of other metals, focussing on specific subject areas, might be considered by AMAP.

Discussing these plans, the WG noted that, in their work plan, there was also an intention to provide input to the UNEP and UN ECE processes relating to mercury. At the UNEP Governing Council 24th meeting (2007), an ad hoc open-ended WG on mercury was established to review and assess options for enhanced voluntary measures and new or existing international legal instruments, and report to GC25 where a decision on the matter would be taken. As part of this process, UNEPs Executive Director has been requested to prepare a report on atmospheric mercury emissions (WG21/9/Info. 1). In order to contribute to this process, AMAP would likely need to provide information or products in 2008.

Simon Wilson noted that data products on trends (based on the Stockholm workshop) could be readily produced, and also the proposed review of the latest information on MDEs was ongoing with delivery of this review article expected before the summer, if these items were relevant to the other international processes.

The AMAP WG therefore requested the AMEG, to the extent possible, to fast-track some parts of its proposed assessment work, specifically items that might be relevant to the UNEP activity. The AMAP Secretariat agreed to contact the experts responsible for earlier work on mercury emissions inventories with the aim of providing input to the UNEP process. The WG also requested that the AMEG prepare a more detailed prospectus for its deliverable to the AC 2011 Ministerial. The Secretariat agreed to produce a budget for the estimated costs (financial and man-power) associated with the proposed work. AMAP Secretariat has already applied to the NCM for financial support to support parts of the work.

The WG were requested to take steps to secure the necessary funding for engagement of their national experts in this work, including some activities that may already be initiated in 2007, e.g. in order to contribute to the UNEP process.

AMAP Radioactivity Expert Group: Radioactivity update assessment 2009

Per Strand (Norway, co-lead of the AREG) reported on plans for the update assessment(s) of radioactivity in the Arctic that will focus on reassessment of sources and evaluation of actions. This is timely as several international organizations have requested an evaluation of the current situation. The intention is to deliver a series of (5) topic oriented reports that will include monitoring reports. Two or three of these reports will be delivered in 2009 if the work in 2008 proceeds according to plan. A number of ongoing projects will contribute to the 2009 assessments, including: TeNORM concerned with releases of (natural) radioactivity as a result of oil and gas activities. One of the intended reports would address protection of the environment - a follow-up to the re-prioritisation (that was initiated by AMAP and is now adopted by several other agencies and organizations) that recognizes the need for radiological protection of the environment and ecosystems, as opposed to only protection of humans. This also addresses effects of combined exposure to radiation and other contaminants. The work on radioactivity and climate change is more difficult to fit into a topic based update report, and might be more usefully combined with similar information on other contaminants. The schedule proposed by the AREG is to produce a first draft of some of the topic reports by the

end of the year, with delivery of these to the AC in 2009. One further deliverable would be an 'assessment toolkit'.

The WG welcomed these plans for deliverables in 2009. Canada noted that it would be nominating a new expert to participate in the AREG.

AMAP Human Health Expert Group: Human Health update assessment 2009

On behalf of the AHHEG, Russel Shearer presented the outline for the update assessment on human health in the Arctic that is planned for delivery at the Ministerial meeting in 2009. The first draft of the assessment will be circulated for internal review in May 2007. The AHHEG are planning a Symposium in autumn 2008 linked to the IPY. This meeting may be arranged together with other international partners. The WG requested that the AHHEG look further into the implications of the trends in lifestyle changes in certain regions, and in particular the implications of a move away from diets based on traditional foods. In this connection, the large scale Inuit Health Survey is a potential source of relevant information.

AMAP POPs Expert Group: Assessment Products for 2009

Derek Muir (Canada, co-lead of the APEG) informed about the planned deliverables by the APEG in the coming years, based on the outcome of the APEG meeting that was held in Burlington, Canada in March 2006. He referred to the large amount of new information and ongoing work on POPs in the Arctic that had accumulated since the last assessment report in 2002 (that was based on information up to 2000/2001). One component of the APEG plans is to prepare a series of review articles in 2007 and 2008, for joint publication in a scientific journal and by AMAP, to give greater scientific recognition to AMAP experts responsible for these products; AMAP fact sheets based on these articles would also be prepared, as had been done for BFRs. Seven such review articles are currently planned (brominated flame retardants update, per- and polyfluorinated compounds, polychlorinated naphthalenes, endosulfan, current use pesticides, effects of POPs, dynamics and processes important for transport and accumulation in the Arctic/Use of modelling/Emission estimates of old and new contaminants). Drafting meetings would be arranged and a science writer would be engaged to produce a new summary report during 2008 for delivery to Ministers in 2009. In connection with the intention to support work under the UN ECE and UNEP (Stockholm Convention), the group also planned to prepare data products, in particular products on trends (for both legacy POPs and new POPs). In order to do this a trend assessment workshop, similar to that conducted by the AMEG for mercury, was being planned for late 2007/early 2008, utilising a statistical toolkit that would be produced by Anders Bignert.

The WG identified the need to reach an agreement with the publisher(s) of relevant journal(s) concerning joint publication of the review articles, in particular if this involved publication in a journal special issue, and requested that the Secretariat follow-up on this. Denmark complemented the APEG on this proposed strategy and suggested that it might also be used as a model for the AMEG and other expert groups.

Derek Muir then continued with a short presentation to update the WG on recent information concerning POPs in the Arctic, including the identification of groups of chemicals with Arctic accumulation potential, using the approach developed by Wania et al. to classify chemicals as 'fliers', 'hoppers', 'multi-hoppers' and 'swimmers' based on their chemical (partitioning) properties. One implication of this differentiation in pathways is the lag time between release of these chemicals and their arrival in the Arctic, the 'swimmers' having a significant lag time relative to other groups. He highlighted the need for trend monitoring programmes based on annual sampling, and the need for more screening studies. Some 100000 chemicals are currently in use, including some 30000 industrial chemicals. Properties of many of these are

poorly known and work is ongoing in Europe and North America to address this. Theoretical screening studies have identified at least 3000 that are produced in significant quantities and have bioaccumulation potential, and may therefore constitute POPs of concern for the future. New candidates for investigation in the Arctic include current use pesticides, cyclic siloxanes (used in personal hygiene products), polyfluoro alcohols (which degrade to anionics in air), chlorinated paraffins, and haloalkyl phosphates.

The WG took note of the fact that many of the proposed IPY projects with a focus on contaminants had not received funding, however, IPY cruises may represent an opportunity to collect samples from locations that are otherwise not covered by monitoring programmes and that could be stored for future analysis of contaminants. Biota samples were considered most suitable in this respect, and countries were asked to communicate this message to their national IPY committees.

Simon Wilson reported that the statistical toolkit for trend analysis was almost finalised and would be distributed within a few days.

7. Special Projects and new National AMAP Relevant Initiatives

NCP QA/QC Proposal

Simon Wilson reported on an offer from Canada to expand the inter-laboratory comparison QA/QC component of the Canadian Northern Contaminants Programme (NCP) to include laboratories from other AMAP countries. The potential benefits of such an arrangement include:

- Advantages to AMAP: a laboratory inter-comparison activity specifically designed to address issues related to Arctic contaminants monitoring, in particular, inclusion of sample matrix and contaminant levels that are most relevant to the Arctic samples. More direct access to results, that can be used in reports tailored to meet AMAP assessment needs.
- Advantages to NCP: an increased number of participating laboratories, thus increasing the power of the NCP QA/QC programme, also allowing international validation of the programme within the Arctic countries.
- Advantages to participating laboratories: access to a QA/QC activity focusing on Arctic relevant samples, complementing and not competing with other laboratory QA/QC programmes (such as QUASIMEME). No cost of participation (costs, initially at least, would be covered through NCP sources).

Eight laboratories in Denmark, Iceland and Finland had responded to the questionnaire distributed in connection with this initiative (in addition to the 25 participating Canadian laboratories), but others had not yet responded. The AMAP HoDs for Norway, Russia and the United States agreed to follow-up on this to ensure responses from relevant laboratories in their countries. The AMAP WG fully supported this initiative and thanked Canada for their kind offer to fund laboratory participation in this programme.

The WG were informed that the AMAP blood-analysis ring test are on-going and proving very successful. The NCP laboratory intercomparison activity is coordinated with the AMAP laboratory round-robins on analysis of human health samples.

AMAP Project Directory and AMAP NIP reporting

Helgi Jensson (Iceland) provided an updated AMAP national implementation plan (WG21/7/2); he notified his intention to also add this information to the AMAP Project Directory. Outi Mähönen (Finland) informed that Finnish NIP information was also being updated in the AMAP Project Directory. Gunnar Futsæter (Norway) asked whether NIP descriptions or PD updates were the preferable manner for reporting AMAP NIPs. Simon Wilson replied that NIP documents such as that supplied by Iceland were maintained and used by the Secretariat; however, registering information on AMAP NIPs in the PD also makes this more readily available to a wider scientific community. John Calder noted that the US NSF had established a database to handle the IPY funded projects and were intending to use this as a basis for transferring information to the AMAP PD. Simon Wilson welcomed this initiative and noted that there was an intention to register information on AMAP relevant IPY projects that had received funding in the AMAP PD. This would then represent a centralised source of information on both IPY and other Arctic monitoring and research activities. He expressed his disappointment that the IPY meta-data on projects was otherwise being registered in a large number of non-connected web-based inventories, which makes it difficult to get an overview of IPY funded projects. A database on funding status of IPY projects established by the Danish Polar Centre was a more promising development. The AMAP PD currently contains information on some 650 projects and programmes (covering contaminants, climate, biodiversity, and other fields of activity) more than half of which have been registered by groups external to AMAP. Some technical problems with the PD associated with a move of the application to a new server were being resolved and the system was expected to be operational again within a few days. (see www.amap.no > Resources and Projects > AMAP Project Directory).

Projects in Russia

Yuri Sychev (AMAP Secretariat) reported on the status of the proposed Siberian Hydrology project. This project has received considerable interest from within the GEF organizations (UNEP and UNDP) however the funding application has been stalled pending internal reorganization of the GEF funding arrangements. As soon as these rearrangements have been completed the project application will be resubmitted to GEF, and a decision will be made on whether to submit the application through UNEP or UNDP. Roshydromet has agreed to support the project with an in-kind contribution of 2 million USD; the GEF application amounts to a further 1 million USD, with additional funding being sought from the Russian Regions. This project is part of the follow-up to the PTS project. The UNEP review of the PTS project was very favourable. RAIPON requested that, as a sponsor of the PTS project, they also be involved in the Siberian Hydrology project, and it was agreed that this would be done.

In connection with other PTS follow-up and ACAP related projects aimed at disposal of stocks of banned chemicals and PCB-containing wastes, the WG noted that implementation of these projects, and provision of GEF funding to support these projects was dependent on Russia ratifying the Stockholm Convention. Yuri Tsaturov responded that this was recognized in Russia and that efforts to secure Russian ratification of the Stockholm Convention were continuing. Some of the drums containing PCB contaminated oil have been identified as lubricant oil that may contain PCBs.

Yuri Sychev informed the WG that an agreement with the Ministry of Defence has been reached concerning the proposed project for clean-up of contaminated sites on Franz Josef Land. Russia has allocated some 300000 USD for this work and NEFCO has allocated 200000 Euro. The project is due to start in June/July/August, as soon as snow has melted. A

NATO group have also expressed an interest in this work, however this would need to be considered further within Russia.

Lars-Otto Reiersen informed that, based on funding from Canada, Norway and NCM, mercury monitoring at Amderma had been continued through 2006, but that funds were now required to prolong this monitoring activity. Amderma now represents the third longest (Tekran-based) mercury monitoring time-series in the Arctic (after Alert and Ny-Alesund). Funding is also being sought to extend the monitoring to include POPs and to implement these measurements also at other sites in northern Russia (including Tiksi and/or Pevek and/or Lavrentiya) to cover possible pathways of contamination from China and other countries in East Asia. Canada indicated its strong interest in securing the continuation of mercury monitoring at Amderma, and also noted its funding for an IPY project that would include implementation of air monitoring in northern Russia, and also a proposal for Canadian support to reopen the monitoring station at Barrow, Alaska for monitoring of POPs and mercury.

Other International Projects

Lars-Otto Reiersen further updated the WG on continuing efforts to gain support from the World Bank, Nordic Council of Ministers and the EU (through FP7 research funding) for activities on combined effects of contaminants and human health.

8. Cooperation with other AC WGs

ACAP

Lars-Otto Reiersen reviewed AMAP involvement in ongoing ACAP projects. Angela Bandemehr asked how AMAP and ACAP might work more closely, for example to look for indicators to document the effectiveness of ACAP activities. In response, time-series data sets and results of human blood monitoring studies close to areas of project implementation were considered the most likely indicators to reflect improvements – these would need to be targeted monitoring studies to distinguish improvements due to local actions from the general patterns of environmental contamination, however, in this respect local actions might well generate a strong trend signal that would be easier to detect. It was also noted that ACAP projects to date have focussed very much on Russia; the ACAP mercury and BFR projects have identified the need for ACAP to address pollution sources in other countries to a greater extent (including sources in non-Arctic areas of Arctic countries); ACAPs ability to meet this challenge will be an important indicator of its performance.

Angela Bandemehr also asked about the status of the Research and Action Plan for Human Health Risk Reduction (HHRR) and how ACAP might be of assistance. Lars-Otto Reiersen emphasized the importance of ACAP cooperation in the HHRR in the Arctic. He said that this activity is initially primarily a risk assessment involving ACAP throughout the risk assessment process, so that follow-up reduction activities can be better developed and planned.

CAFF

John Calder introduced the proposed ‘Greenpaper’ concerning coordination of AMAP-CAFF Monitoring Programmes, and the descriptions received from a number of countries on how such coordination is implemented at the national level (WG21/8/-WG21/8/6). He recommended the WG endorse the ‘Greenpaper’ and submit it to CAFF for similar consideration and endorsement by their WG.

The WG discussions reflected a general frustration with this process; and ongoing concerns that they still had not received any detailed description of the content of the CBMP. Several delegations noted that CBMP is still largely a concept rather than an implemented programme of activities, and suggested that perhaps this could be linked to the consideration of the SAON. Given continuing uncertainty as to whether this matter could be dealt with by correspondence or would necessitate a joint-meeting with CAFF, the WG noted that at least two joint-meetings of the AMAP and CAFF WGs, expert meetings (and a cancelled joint expert group meeting) had made little progress. The AMAP WG conclusion was that, until such time as the CBMP is better defined, a joint meeting (at either the WG or expert level) would serve no purpose, and that the SAOs should be informed that AMAP-CAFF programme coordination at the present time is best served by coordination at the national level. They therefore proposed the following course of action: The 'Greenpaper' should be modified to include a new sentence to reflect the above conclusions, and have the country contributions on coordination at the national level attached; the final section that discusses possible future assessments should be removed. This paper should then be passed to the CAFF WG for its consideration. Countries that had not yet responded on their national level coordination were asked to do so.

EPPR

Lars-Otto Reiersen informed about discussions with the new Chair of EPPR regarding the joint AMAP-EPPR mapping initiatives and EPPR proposals to update their maps of resources at risk from oil spills. Information being compiled for the OGA would be of potential relevance to this project. Simon Wilson was asked to communicate with the EPPR chair in this connexion. Simon Wilson informed the WG that little activity had taken place on the mapping/GIS cooperation in the period since the last WG meeting, despite the WG support to continue this work and new interest in this cooperation from several other partners; this was due to lack of time and other work priorities.

PAME

The main cooperation between AMAP and PAME relates to the Arctic Shipping Assessment. In follow-up to earlier discussions, PAME would prepare a more detailed request on the types of national (pollution) experts that they would like AMAP to nominate for possible involvement in this assessment. Outi Mähönen informed that Finland was one of the lead countries for this project. Due to a lack of interest and resources, there may be a need to downscale the scope of the shipping assessment relative to its original intentions.

Hein-Rune Skjoldal (Norway) informed the WG about discussions within PAME on the LME/ecosystem approach, and conflicting opinions expressed during the PAME meeting on how to apply such an approach.

SDWG

Lars-Otto Reiersen informed the WG about ongoing activities to try to better coordinate human health activities being initiated under AMAP, SDWG and also IPY. Some questions had arisen over the use of the significant funding that Russia had announced in connection with the SDWG human health project.

He also informed about developments in connection with a Norwegian led initiative involving both SDWG and PAME concerning Project on Implementation of Integrated, Ecosystems-based Oceans Management in the Arctic.

The WG requested that the AMAP Chair raise with the Chairs of the PAME and SDWG WGs the need for greater consultation on planned initiatives that were likely to involve overlap with AMAP.

9. International Cooperation

International Polar Year (IPY)

National reports on IPY implementation were presented as follows:

Yuri Tsaturov informed that Russia had allocated 250 million rbl (10 million USD) to support IPY projects in the Arctic and Antarctic. The funding is split between project areas as follows: 54% Geophysical, 8% Littoral; 11% Ecosystem; 16% Lifestyle of indigenous peoples, 9% Education, 1 + 1 % Data and Networking/Outreach. More than 20 projects will be implemented in the Yamal region focussing on adaptation in the far North. In April 2007 drifting stations will be deployed. There are possibilities for extra sampling but this would need to be arranged as a special project for implementation in 2008. The AARI maintain the Russian IPY website (www.ipyeaso.aari.ru).

Helgi Jensson reported on Icelandic IPY implementation referring to document (WG21/9/3).

Erik Syvertsen provided a short presentation of the Norwegian IPY implementation. 26 projects are currently funded from an allocation of 48 million USD; 4 projects are implemented under other programmes, and 2 educational projects have received an additional financing of 2.3 million USD. 67 new project applications for 2007-8 are currently under evaluation, of which approx. 15 will be funded.

Russel Shearer presented the Canadian IPY activities. Canada has allocated funding of 150 million CAD over 6 years, which will finance 44 projects. The focus of Canadian IPY projects is on Climate change, and Health and Well-being. Canadian IPY activities are strongly connected to ArcticNet (see agenda item 5). A number of the projects will be of interest for AMAP, including projects addressing combined effects, climate and adaptation, and contaminants and human health. Contaminants-related work is generally embedded in other projects. Activities based around cruises of the CCGS Amundsen that will visit all main Canadian Arctic communities are an important component of the Canadian IPY, including a number of workshops on-board that will engage scientists and local people in consideration of climate and adaptation. Cooperation should be developed with AMAP in relation to this work. Information on the Canadian IPY can be found on www.api-ipy.gc.ca

Morten Olsen informed that Denmark has allocated 3 million USD for logistics in Greenland and 13 million USD for implementation of IPY projects. Due to the late allocation of these funds, decisions regarding the selection of projects have yet to be made. The Danish IPY website is maintained by the Danish Polar Centre (www.dpc.dk)

Outi Mähönen informed that Finland do not have any specific IPY research projects, however, Finnish scientists are involved in a number of IPY projects.

Stockholm convention

Lars-Otto Reiersen provided a brief update on AMAP cooperation with UNEP on the implementation of the Stockholm Convention Global Monitoring Programme; which had resulted in some problems with WHO in connection with blood and milk monitoring recommendations, apparently due a mis-understandings on the part of WHO that AMAP was implementing its blood monitoring programme in Africa and South America.

UNECE-LRTAP

John Calder informed the WG about a meeting with the lead of the UN ECE TF on Hemispheric Transport. This group has a lot of overlapping activities with AMAP, and also involves a number of the same experts, so greater cooperation between the two is desirable. The next meeting of the UN ECE TF will be in Reading (30 May – 1 June) and the WG encouraged the AMAP Secretariat to arrange for AMAP representation at this meeting.

EU/EEA/Northern Dimension.

Lars-Otto informed the WG on activities under the EU on Arctic monitoring and research, including a recent meeting organized by the EC DG Environment Climate Unit. Outi Mähönen indicated that, to date, it is unclear what the Northern Dimension has achieved, though there is some hope that the EU will place a greater focus on the north in the coming period, including some prioritisation of Arctic research activities in the FP7.

AMAP have been invited to attend the EMMA (European Marine Monitoring and Assessment) group meeting at the end of May, and a related meeting in April on monitoring implementation.

GEO-GEOSS

John Calder informed that the US GEO group are currently driving much of this initiative. It has been agreed that there should be an Arctic component to GEO, implemented by the Arctic Council, however since the AC is not a legal entity there are some problems in how this should be arranged. The Arctic Council Chair would need to address this matter.

10. AMAP Progress report to the SAO meeting in April 2007

The WG agreed that the progress report from AMAP to the next SAO meeting should include a presentation on the status of the OGA report production, and a presentation of the Acidification and Arctic Haze (AAHA) scientific assessment reports that were published in 2006. Brief reports from all AMAP expert groups should be appended outlining their plans for deliverables and implementation of the AMAP work plan, which needs to be confirmed by the SAOs.

AMAP should ask the SAOs for an adequate opportunity to present this information, and should ask for clarification as to whether the arrangements (precluding WG presentations) that were introduced during the Russian chairmanship would be continued.

AMAP should also request clarification regarding the (Norwegian) project on 'Reductions in Sea Ice', in order to consider whether and how AMAP might be involved in this activity.

11. Next WG meeting

The time and venue for the next AMAP WG meeting will be decided when more information regarding the finalization of Chapter 7 of the scientific report of the OGA and the OGA Overview report is available. The need for a second meeting of at least AMAP HoDs in 2007 is envisaged.

12. Any other business.

The WG noted that this would be the last AMAP WG meeting at which Gunnar Futsæter would participate after serving on the AMAP WG since its earliest days. Gunnar Futsæter

expressed the hope that he would continue to be involved with both AMAP and ACAP in the future as part of his new work within the UNEP Chemicals office in Geneva where he has been employed to work on mercury issues.

The WG were also informed that Frits Steenhuisen, another long-serving member of the AMAP WG as observer from the Netherlands, was also changing jobs and would not be participating in future AMAP WG meetings. Since he was not present at the current meeting due to other commitments, the WG asked the Netherlands participants to convey their thanks to Frits for his past contributions to AMAP, and wish him the best for the future.

13. End of meeting

John Calder thanked all participants for their contributions during the meeting, and repeated the best wishes and thanks to Gunnar Futsæter and Frits Steenhuisen; he then closed the meeting.

Annex 1. List of Participants: The 21th AMAP Working Group Meeting, Hanover, New Hampshire, USA, 12 – 14 March, 2007

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Annex 2. List of Documents for the 21th AMAP Working Group Meeting

Ref	Title
WG21/2/1	Draft Agenda and Time schedule for the 21th AMAP WG meeting, Hanover, USA, 12 – 14 March 2007
WG21/2/2	Draft List of Participants: The 21 th AMAP Working Group Meeting
WG21/2/3	List of Documents for the 21 th AMAP Working Group Meeting
WG21/3/1	Overview of AMAP Relevant Meetings in 2007
WG21/3/2	List of Actions from AMAP WG 20
WG21/4/1	Revised Timetable for Completion of the OGA, Version 5 February, 2007
WG21/4/2	OGA Overview March 2007 Review Draft
WG21/4/3	Summary of handling of comments received to the draft OGA Overview Report circulated 9 Feb. 2007. Comments on OGA Overview, February 2007 Review Draft.
WG21/4/4	OGA Draft Executive Summary and Recommendations. Version 11 March
WG21/4/5	AMAP Oil and Gas Assessment – Revised Budget
WG21/4/6	OGA Chapter 3. Box on Overall Economy of the Circumpolar Arctic and the Contribution from Oil and Gas Activities
WG21/5/Info. 1	Tromsø SAON Report
WG21/5/1	COMAAR Info. as Background for SAON Discussion
WG21/5/2	Synthesis of Input concerning ACIA Follow-on Assessment
WG21/5/3	Arctic Marine Ecosystems: Patterns of Biodiversity, Ecosystem Functions, and Responses to Climate Change
WG21/5/4	Outcome of the Carbon Cycle Workshop
Not assigned	Downscaling workshop Up-Date. List of Registrees (Will be distributed to the AMAP HoDs after the WG Meeting)
WG21/6/1	Input from the AMAP Mercury Expert Group and Plans for Deliverables
WG21/6/1-Add. 1	AMAP Expert Group on Mercury. Proposed Timetable for Mercury Assessment.
WG21/6/2	AMAP HHAG Report
WG21/6/3	AMAP HHAG. Revised Outline 2007-2008
WG21/7/1	NCP QA/QC Expansion to serve AMAP
WG21/7/2	Iceland Implementation Plan 2007
WG21/8/1	AMAP/CAFF Joint Monitoring Program. Canadian Contribution. March 1, 2007
WG21/8/2	U.S. Contributions to the AMAP-CAFF Coordinated Monitoring Program
WG21/8/3	AMAP/CAFF Joint Monitoring Program Contribution from Sweden. Version 5 March, 2007
WG21/8/4	Green Paper On AMAP-CAFF Coordinated Monitoring Program. Contribution from Norway. Draft Version 2 February, 2007

Ref	Title
WG21/8/5	Contribution to the AMAP – CAFF Coordinated Monitoring Program. Greenland / Faroe Islands / Denmark
WG21/8/6	AMAP - CAFF JOINT MONITORING PROGRAM Finnish Contribution
WG21/9/1	Information on IPY Project Funding Status.
WG21/9/Info. 1	UNEP Governing Council 24 – Mercury Issue Outcome
WG21/9/2	Plan of Expeditionary Study of Russian Organizations in the Arctic in 2007 within the Framework of IPY
WG21/9/3	IPY Project with financial Support from Iceland
WG21/9/4	Norwegian IPY Projects (Research Council of Norway)
WG21/9/5	Background. Canadian Science and Research Projects for IPY 2007 – 2008 Funding from the Government of Canada
WG21/10/1	Draft Agenda for the SAO Meeting, Tromsø, Norway, April 12 – 13, 2007

Annex 3. Draft Agenda for the 21st AMAP WG, Hanover, New Hampshire, USA, March 12-14, 2007

1. Opening and Welcome
2. Approval of the Agenda
3. Short report from the Chair and Secretariat
 - Review of actions from last meeting
4. The Oil and Gas Assessment
 - Status for the Scientific Assessment
 - Work to be done
 - Events for presentation
 - Financing & Order of reports
 - The Overview report
 - Approval of the report and the recommendations
 - Work to be done
 - Event for presentation and further distribution to a wider public
 - Financing & Order of reports
5. The ACIA Follow up
 - Short presentation of the work under progress and preparation:
 - Carbon Flux
 - Downscaling
 - Reanalyses – use of latest models
 - SAON
 - National initiatives relevant for AMAP's work
 - Presentation of reports on new information, coordination with the next IPCC report.
6. Status for the 2009 Deliverables:
 - Human health report
 - Radioactivity in the Arctic
 - POPs and Mercury Updates
 - New Issues of concern
7. Special Projects and new National AMAP relevant initiatives:
 - Siberian Rivers
 - Follow up of PTS
 - Combined effects
 - NCP Initiative on QA/QC cooperation
8. Cooperation with other WGs
9. International cooperation
 - Stockholm convention
 - UNECE/LRTAP
 - EU/EEA/Northern Dimension
 - IPY

- GEO/GEOSS
- World Bank
- Climate and Contaminants

10. AMAP Progress Report to the SAO meeting in April

11. Next WG meeting.

12. Any other business

13. End of Meeting

Annex 4. List of Actions agreed at the 21st AMAP WG, Hanover, New Hampshire, USA, March 12-14, 2007

Agenda item	Action	By	Deadline
4	Discuss matters relating to AMAP-CAFF cooperation on OGA at Chairs meeting and with SAOs.	AMAP Chair	asap
4	Look into problems associated with the lack of promised OGA contributions from US Fish and Wildlife Service experts.	USA (Tom Armstrong)	asap
4	Provide the Secretariat with a non-binding estimate of the numbers of copies of each of the OGA reports that they would like to receive for national distribution.	All countries	asap
4	Take contact with the organizers of the Arctic Energy Summit to clarify the status of the planning of this event.	AMAP Chair	asap
4	Contact the RAO-CIS organizers to discuss possible presentation of OGA results in 2008.	Yuri Sychev	asap
4	Communicate WG acceptance of offer to present OGA results at Arctic Frontier conference and engage with the organizers to take care of the necessary arrangements.	Salve Dahle, AMAP Secretariat	asap
4	Confirm to Hein-Rune Skjoldal and AMAP Secretariat whether or not they can meet requests for additional input to OGA chapter 6.	Canada, Denmark, Iceland, Russia USA	Within two weeks (by 30 March)
4	Final deadline for hand-over of all chapters of the scientific report for technical and linguistic editing.	OGA leads and lead authors	15 June
5	Ensure that relevant research groups in their countries are aware of the deadline of 1 May for applications to the EU FP7 for funding for downscaling projects.	AMAP HoDs (esp. Denmark, Finland, Sweden, Norway)	asap

Agenda item	Action	By	Deadline
5	Consult further with the CEG on the content of document WG21/5/2, to assign priorities to the various tasks proposed.	John Walsh	asap
5	Communicate request to CEG to develop a proposal to prepare a report that would synthesize Arctic information from the IPCC reports into a single report, and discuss financing of this with the University of Alaska.	John Walsh AMAP Secretariat	asap (for reaction by June 1)
6	Arrange trend workshop for POPs.	AMAP Secretariat and lead countries	1 August
6	Develop prospectus for planned mercury assessment, including looking in to possibilities to fast-track some parts of its proposed assessment work in order to deliver data products relevant to the UNEP mercury process in 2008.	AMEG leads	1 June
6	Take steps to secure the necessary funding for engagement of their national experts in this work, including some activities that may already be initiated in 2007.	AMAP HoDs	asap
6	Reach an agreement with the publisher(s) of relevant journal(s) concerning joint publication of the review articles.	AMAP Secretariat	1 September
6	Prepare a provisional budget of the estimated costs (financial and man-power) associated with the proposed work on the POPs and mercury update assessments.	AMAP Secretariat	1 September
6	Distributed the AMAP statistical toolkit for trend analysis developed by Anders Bignert.	Simon Wilson	Before 30 March
6	Communicate with national IPY committees to investigate possibilities to add contaminant sampling activities to ongoing IPY activities (especially cruises in the Arctic waters).	HoDs	asap

Agenda item	Action	By	Deadline
7	Follow-up on to ensure responses from relevant laboratories in their countries are returned to the Secretariat with the Canadian NCP laboratory QA/QC initiative.	AMAP HoDs for Norway, Russia, United States	asap
7	Communicate to AMAP HoDs and other contacts when technical problems with AMAP PD are resolved.	Simon Wilson	asap
8	Discuss how AMAP might contribute to documenting the effectiveness of ACAP activities through monitoring studies close to areas of project implementation.	AMAP Secretariat	ACAP meeting (March 2007)
8	Modify AMAP-CAFF Greenpaper, as discussed, and forward this to CAFF	AMAP Chair	asap
8	Inform SAOs on recommendation for coordination between AMAP and CAFF monitoring activities at national level.	AMAP Chair	SAO meeting (April 2007)
8	Nominate national experts from AMAP expert groups for possible involvement in PAME shipping assessment after receiving a more detailed request on the types of national (pollution) experts that they need.	AMAP Secretariat and AAP HoDs	Pending contact from PAME
8	Raise with the Chairs of the PAME and SDWG WGs the need for greater consultation on planned initiatives that were likely to involve overlap with AMAP.	AMAP Chair	SAO meeting (April 2007)
10	Ask SAOs for an adequate opportunity to present WG information, and for clarification as to whether the arrangements (precluding WG presentations) that were introduced during the Russian chairmanship would be continued.	AMAP Chair	SAO meeting (April 2007)
10	Request clarification regarding the (Norwegian) project on 'Reductions in Sea Ice', in order to consider whether and how AMAP might be involved in this activity.	AMAP Chair	SAO meeting (April 2007)
11	Discuss plans for next AMAP WG meeting (including possible second meeting in 2007) when OGA delivery schedule is confirmed.	AMAP Secretariat	After 15 June